

SR 161

ROUTE DEVELOPMENT PLAN

MILE POST 32.55 TO 35.00

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DISTRICT 1

BELLEVUE, WASHINGTON

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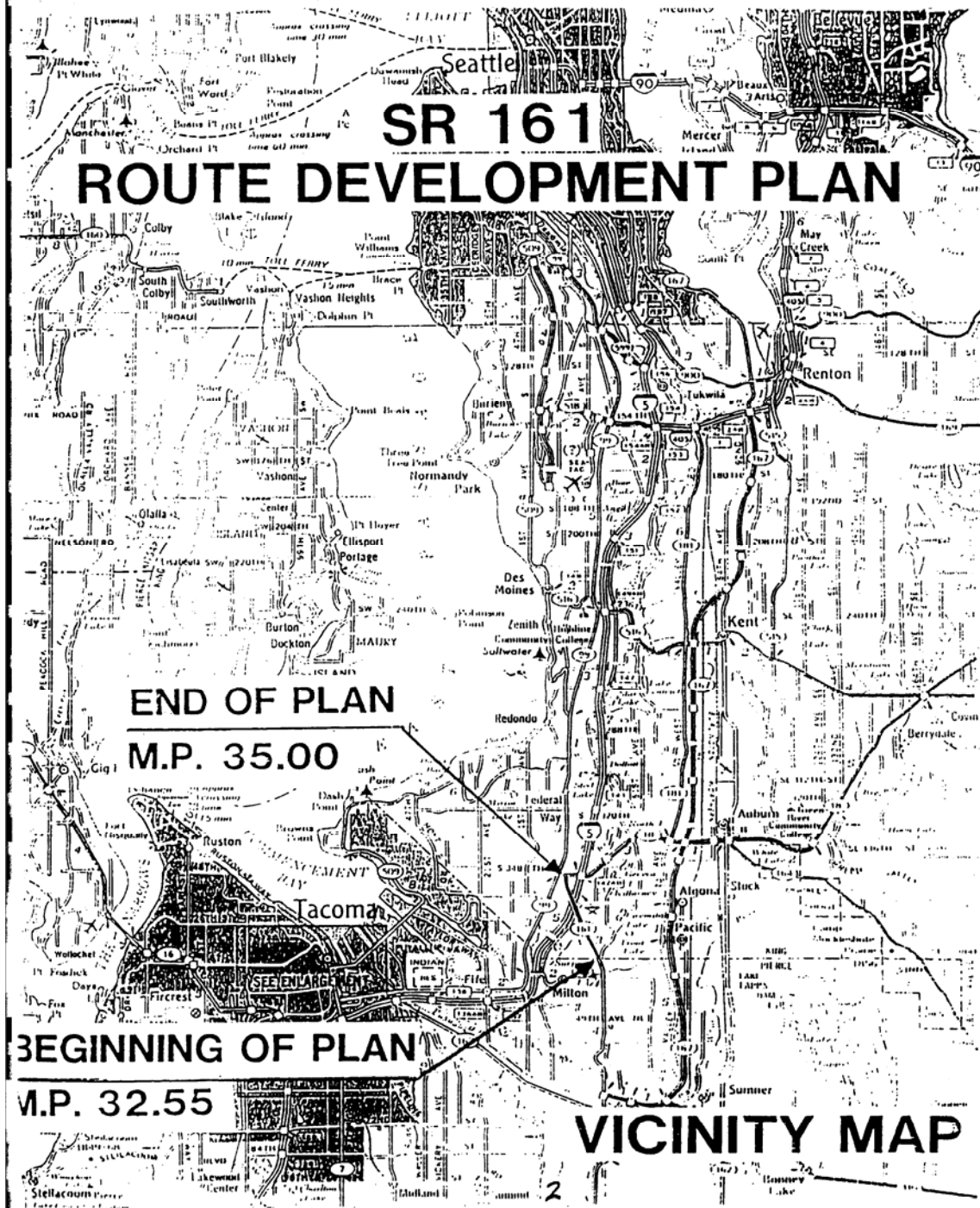
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EXECUTIVE SUMMARY

This Route Development Plan is for SR 161, which is located in south King County. It is approximately 2.5 miles long and crosses over Interstate 5 at approximately So. 360th Street (MP 34.25). It connects the city of Federal Way with the cities of Milton and Puyallup.

SR 161 operates as a minor arterial. The development rate is high and continuous. Major development areas are in the vicinity of the intersections of SR 161/SR 18 and SR 161/S. 368th Street, (new street). This Route Development Plan was prepared to accommodate current and forecasted growth trends to the year 2010.

This plan deals with SR 161 from the Pierce/King County Line (MP 32.55) to its junction with SR 18 (MP 35.00). The southern terminus of SR 161 is at its junction with SR 7. SR 161 south of the King/Pierce County line lies in District 3. This plan recommends improvement of the study section to a four-lane design separated by a 13-foot median. In the vicinity of the intersection with SR 18, the roadway should be seven lanes wide. Several intersections and traffic signals have been identified for future improvements. Additional R/W may be required for the ditch section, in areas where only 100 feet of R/W exists.



VICINITY MAP

ROUTE DEVELOPMENT PLAN

1. Introduction

A Route Development Plan is intended to identify the improvements needed for a designated section of state highway to attain a desired level of service at a future date, usually 20 year. hence. Such a plan encompasses a myriad of factors distilled into a recommended highway design. When approved, this long range plan will provide guidance for development of the District's program of projects as well as guiding the District's Developer Group in defining developer impact mitigation measures.

The Department has been involved in several transportation studies with other jurisdictions and community groups in the vicinity of this corridor. We have had meetings with King County and have incorporated their concerns and recommendations. District 3 was contacted in order to establish continuity of this route. When approved, a copy of the plan will be sent to District 3.

2. Background

This study of SR 161 is part of the Washington State Department of Transportation (WSDOT) District 1 long-range route development planning program. SR 161 is classified as a minor arterial on the 1986 Functional Classification Plan.

This section of highway is 2.45 miles long. The limits are from the King/Pierce County line (MP 32.55) to SR 18 (MP 35.00). The primary purpose of SR 161 is that of a direct route between the Federal Way area in King County and the cities of Milton and Puyallup in Pierce County.

During the peak periods, SR 161 connects these Pierce County communities with Interstate 5, providing a link for longer commute trips. It also provides access to Enchanted Village, a popular tourist attraction during the summer.

The 1988 Level of Development Plan indicates "resurface, restore, and rehabilitate as the standard to which future improvements and maintenance of the roadway will be accomplished. The January 1988 Master Plan for Limited Access Highways identifies SR 161 as planned for modified access controlled highway.

The zoning classifications adjacent to SR 161 west of I-5 are Business Commercial or Industrial. On the east side of I-5, the predominate zoning is single-family (4-9 Dwelling Units/Acre) with a small pocket of Professional Office -Apartment and Park and Recreation zones. This zoning is consistent with the King County and Federal Way comprehensive/community plans.

Within the limits of this study, SR 161 is generally a two-lane roadway. At the major intersection at SR 161 and SR 18, SR 161 expands to three lanes plus a short right turn

drop lane. In the near future, this intersection will be improved to five lanes as the result of developer mitigation. King County has long term plans projecting the SR 161 leg of this intersection to be seven to eight lanes wide by the year 2010. With the recent incorporation of the city of Federal Way, this decision will be subject to review.

The angle of intersection of 28th Ave. So. and SR 161 is outside of WSDOT intersection angle standards. The desirable angle between any two respective legs of an intersection should be between 75 and 105 degrees. The angle at this intersection is 27 degrees and is well below the standard. To construct a standard four legged intersection, would involve the purchase of right-of-way on both sides of SR 161 and realignment of 28th Ave. S. on both sides of SR 161.

This area of study is also served by three other state roadways. They are SR 18 and I-5, (each of which is a limited access facility) and SR 99, (a principal arterial).

There are several large residential developments scheduled for construction along this corridor in the near future. King County has plans for a new four-lane county street at So. 368th (south side only). The first stage of a large shopping center is being constructed in the southeastern quadrant of the SR 161/SR 18 intersection.

TYPICAL ROADWAY SECTION

A. Existing Conditions

The typical SR 161 roadway section is 22 feet wide with two 11-foot wide lanes. At the south end near the Pierce County line there is a southbound 12-foot truck climbing lane. Shoulders vary in width from two to ten feet with eight feet being typical. There are no curb, gutter and sidewalk sections. The overcrossing of I-5 is approximately 400 feet in length and 28 feet in width. At the intersection with SR 18, the roadway widens to four lanes.

B. Number of Lanes and Proposed Sections

Actual traffic counts were taken in this area by the WSDOT in the fall of 1987. These counts (ADTs) varied from a low of 12,800 at the 28th Ave. S. intersection to a high of 20,100 at the SR 18 intersection. Truck traffic is estimated at 5%-6%. King County and the Puget Sound Council of Governments are projecting traffic growth of 40 to 50 percent by the year 2010. At the intersection with SR 18, SR 161 may see a 100% increase over 1987 counts. The following table shows projected level of service for major intersections on SR 161.



	1990	2010 LOS	2010 LOS
Intersection	LOS	(without improvements)	(with improvements)
SR 161/Military Rd. S.	D	F	D
SR 161/28th Ave. S.	D	F	D
SR 161/Milton Rd. S.	E	F	E
SR 161/SR 18	F	F	E

We recommend a four lane section with a 13-foot wide median. The lanes would be 11 feet wide with 8-foot shoulders. New left-turn lanes would be installed where and when warranted. The four lane section would be from the Pierce County line to the intersection of So. 356th Street. North of So. 356th Street, SR 161 will need to be widened to a seven lane configuration with a two-way left-turn lane with curbs, gutters and sidewalks and a 5 foot section for bicycles.

C. Right of Way Width

The existing R/W for SR 161 is predominantly 100 feet. There are areas south of So. 377th where there is up to 150 feet of R/W. At the intersection of SR 161/SR 18 there is only 70 feet of R/W, but this area is being developed and developers are being asked to donate R/W for a 50/60 foot roadway R/W along their frontage of SR 161. Additional R/W purchase may be needed if a ditch section is required, in areas where only 100 feet of R/W exist.

D. Lane and Shoulder Width

The majority of the SR 161 roadway section will be 73 feet wide. (See Roadway Section Sheet). Lanes will be 11-foot wide and 8-foot shoulders. Also included are 2 foot gutters, 6-inch curbs and 6-foot sidewalks.

E. Curb, Gutter and Sidewalks

Curbs, gutters and sidewalks have been contemplated for both sides of the roadway north of the Milton Road/Sit 161 intersection. New developments adjacent to SR 161 will be required to construct curb, gutter and sidewalks along their frontage with SR 161.

LEVEL OF ACCESS CONTROL

SR 161 is planned for Modified Access Control as stated in the Master Plan for Limited Access Highway (Jan. 1988). For traffic safety and the preservation of roadway capacity, it is desirable to minimize the number of access points.

INTERCHANGES

Planning is underway to asses. The feasibility of an interchange with Interstate 5. If approved, this proposal would provide new direct access to I-5 from WB SR 161 and from SB I-5 to EB SR 161.

BRIDGE

There is one bridge (No. 161/102) in this section of SR 161. It crosses over I-5 at ME 34.21 and is two lanes wide with 3-foot shoulders. This bridge will have to be widened or replaced. In the last four years only two accidents have involved this structure.

INTERSECTIONS

A. Conceptual Channelization Plan

An ultimate channelization plan has not been developed. However, there are several sections where approved channelization plans are available. King County presently has the extension of So. 356th to SR 161 under study. The following table indicates areas where future channelization is in the long-range planning stage or under study for future implementation.

Location Intersection	M.P.
Military Road	32.58
28th Ave. S.	32.93
S. 377th St.	33.05
S. 370th St.	33.54
S. 368th St. (New County Street)	33.85
S. 363rd Pl.	33.98
S. 356th St. Proposed Extension	34.60
SR 18/SR 161	35.00

B. Need for Signalization

As of February 1990, the following locations have been identified by the WSDOT and King County as intersections where new signals are under study or the existing signal system needs upgrading. We recommend a minimum spacing of one quarter mile between signals to ensure an opportunity for good progression of traffic.

Location	M.P.	Description
Military Road	32.60	New Signal
28th Ave. So.	32.98	New Signal
So. 370th Ave.	33.54	New Signal
So. 368th St.	33.85	New Signal
So. 356th Ave.	34.60	New Signal
SR 161/SR 18	35.00	Upgrade existing signal

ROADWAY CHARACTERISTICS

A. Design Speed

The design speed for this corridor is 40/55 mph. The posted speed limit varies from 40 to 55 mph.

B. Accident History

There were 190 accidents and three fatalities on SR 161 for the years 1984 through 1987. 132 people were injured on this 2.45 mile stretch of highway. The intersection of SR 161/SR 18 was not included in this report. The intersections of SR 161/28th Ave. So. (16 accidents), SR 161/Milton Road (39 accidents) and SR 161/16th Ave. S. (19 accidents) show the highest number of accidents. According to the 1987 Accident Data Listing-, the following roadways intersecting with SR 161 have the following accident rates:

<u>Intersections</u>	<u>Number of Accidents</u>	<u>Accident Rate</u>
Military Road	7	0.30
28th Ave. S.	16	0.72
Milton Road So.	39	1.77
16th Ave. So.	19	0.86

The accident rate is per million vehicle miles. According to the 1987 Highway Traffic Accident Report the average accident rate for District 1 is approximately 2.1. (King County is 2.3).

C. Sight Distance Restrictions

The horizontal and vertical alignments provide sufficient sight distance to be within the design guidelines for the design speed.

RAIL TRANSIT

No rail transit corridors are planned for SR 161. The proposed corridor from Seattle to Tacoma would, however, likely pass through the I-5/SR 161 crossing and provide a potential station location. The potential for this location is lessened by the proximity of the Federal Way park and ride lots.

HOV TREATMENT

At the present time, no HOV studies for SR 161 are planned. In 1989, the Washington State Transportation Center (TRAC) began a study of HOV improvements for signalized arterials. Traffic congestion on SR 161, combined with the Federal Way park and ride lots and the I-5 HOV system make SR 161 a desirable facility for integration of HOV techniques.

MISCELLANEOUS

A. Pedestrian Facilities

There are no designated paths or trails being proposed for SR 161. However, curb, gutter and 6-foot sidewalk on both sides are included in roadway sections for the northern section and 8-foot shoulders are provided for the remaining section. We expect low pedestrian travel along this corridor.

B. Bike Paths/Lanes

There are no bicycle routes along SR 161 at the present time but SR 161 is a Class IV Bikeway (shared facility). Appropriate shy distances for bicycles have been incorporated into the roadway sections.

C. Bus Pullouts

Presently there is one designated bus pullout on SR 161. Buses are presently using shoulders as pullouts. In general, with proposed roadway sections, there is sufficient R/W remaining to construct bus pullouts. The WSDOT will continue to coordinate with METRO and Pierce County Transit on the development of bus pullouts.

D. Land Developer Participation

All development activity adjacent to or having an impact upon SR 161 will be expected to mitigate its respective traffic impacts. Mitigation measures may include R/W donations, slope easement donations, and funding and/or construction or roadway improvements. Depending upon the magnitude of the particular traffic impacts and the location of the project, a developer could expect to participate in one or all of the above mitigation measures. Developer mitigation will be determined and processed using the WSDOT Developer Policy as a guideline.

CG:cmi

98/CG-SR161

SR 101 MP 32.55 to MP 35.00

Func. Class	Minor Arterial				
Level of Dev.	3 R				
Travelway	33	22			33+
Roadway	49	38			49+
Structure	28' 16/102				
Life Expect.	2034				
ADT's	15,500	12,000	13,000	17,300	18,800
Truck %	6%				6%
Mile Post	33	34			35
Major Intersections	28 TH Ave S. S. 370 TH St. Milton Rd. SR 18 Military Rd.				
Prop. Improv Plan	Jovita Boulevard to SR 18 stage 1 & 2 (8-95)				
Constr. Biennium					
Long Range Needs	Four Through Lanes			Seven Lanes	
Travelway	57	57	79		
Roadway	73	60	82		
Structure	65' 16/102				
Width					
Master Plan Limited Access	Modified Access Control Planned No Access Control				
District Plan Limited Access	Modified Access Control Planned				